

REVIEW OF THE AULACIDAE (HYMENOPTERA) OF CHILE AND ADJACENT ARGENTINA

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Abstract.—Five species of Aulacidae occur in Chile: *Aulacus braconiformis* (Kieffer), *A. krahmeri* Elgueta and Lanfranco, *A. brevis*, n. sp., *Pristaulacus capitalis* (Schletterer), and *P. rubriventer* (Philippi). Two of these, *A. krahmeri* and *A. brevis*, occur in adjacent Argentina. *Aulacus brevis* also is recorded from the Juan Fernández Islands. A key to species is presented and diagnoses and new distribution records are given. Hosts are wood-boring beetles of the family Cerambycidae.

Key Words: parasitoids, new species, key, Cerambycidae, South America, Juan Fernández Islands

Elgueta and Lanfranco (1994) revised the Chilean species of Aulacidae and included two species of *Aulacus* Jurine and two species of *Pristaulacus* Kieffer. During my study of New World Aulacidae, I have examined about 90 additional specimens of aulacids from Chile and adjacent Argentina, and here I present distribution records extending the distribution of some species, record two species from southern Argentina for the first time, give the first records of Aulacidae from the Juan Fernández Islands, and describe a new species of *Aulacus*. As Elgueta and Lanfranco (1994) have already provided detailed descriptions, only diagnoses of those species are given here. None of the species represented in Chile and southern Argentina occur elsewhere, and the fauna is rather sparse considering the estimated 100 species in the rest of the Neotropics.

For generic synonymy and complete references to each species, see Smith (2001). Terminology follows Huber and Sharkey (1993).

Acronyms for collections from which specimens were borrowed are as follows: AEI, American Entomological Institute, Gainesville, FL; AMNH, American Museum of Natural History, New York, NY; CAS, California Academy of Sciences, San Francisco; CNC, Canadian National Collection, Ottawa; FSCA, Florida State Collection of Arthropods, Gainesville; PC, Pagliano Collection, Torino, Italy; USNM, National Museum of Natural History, Smithsonian Institution, Washington, DC.

KEY TO GENERA AND SPECIES

1. Tarsal claws simple or with minute tooth at base; head without occipital carina (*Aulacus*) 2
- Tarsal claw comblike, with 3 or 4 inner teeth; head with complete occipital carina (*Pristaulacus*) 4
2. Small, 6 mm or less in length; ovipositor length half length of forewing; forewing cell 1M narrow, 3.5× longer than broad, and vein M+Cu mostly atrophied (Fig. 19)
..... *A. brevis*, n. sp.
- Large, 9 or more mm in length; ovipositor length longer than forewing length; forewing

- cell 1M usually broad, about 2–3× longer than broad, and vein M+Cu complete (Figs. 4, 11)
- 3. Wings hyaline to very lightly dusky, costal cell and stigma black (Fig. 11); antenna black with flagellomeres 5, 6, and part of 7 white; hind tarsus black with segments 2 and 3 white; mark on each side of vertex reddish brown; front of head evenly convex (Figs. 9–10) . . . *A. krahmerti*
- Wings black with spot under stigma and stigma yellowish (Fig. 4); antenna mostly yellow with apical 2–3 flagellomeres black; hind tarsus and head uniformly black; front of head projected into a shelllike protuberance above antennae (Figs. 2–3) *A. braconiformis*
- 4. Entirely black; wings entirely hyaline (Fig. 26) *P. capitalis*
- Black with metasoma red; forewing hyaline with black spot at apex (Fig. 33) *P. rubriventer*

Aulacus braconiformis (Kieffer)
(Figs. 1–7)

Neuraulacinus braconiformis Kieffer 1911: 217.

Aulacus braconiformis: Townes 1950: 113.—Smith 2001: 269.

Pristaulacus sp. 1: Barriga 1990: 57, 58.

Diagnosis.—Length, about 15–16 mm. Antenna yellow with scape, pedicel and apical 2–3 flagellomeres black. Head, body, and legs black. Forewing darkly infuscated with yellow spot under stigma and stigma mostly yellow (Fig. 4). Frons angulate, produced forward above antennae (Figs. 2–3); head dull with fine microsculpture (Figs. 1–3). Mesonotum smooth, subshining, without punctures or carinae. Notauli of mesoscutum meet posteriorly near transscutal articulation (Fig. 6). Upper surface of hind coxa rugose (Fig. 5); ovipositor guide not indicated; hind prefemur distinct. Ovipositor length 1.3× forewing length. Both sexes known.

Distribution.—Recorded only from the Region Metropolitana de Santiago by Elgueta and Lanfranco (1994).

New records.—CHILE: O’HIGGINS: Rancagua, XII-85, Pérez Arce (4 ♀, FSCA). SANTIAGO: La Obra, I.70, Alfaro Col. (1 ♂, AMNH); Santiago, Rio Clarillo Nat. Pk., 2-XII-1988–3-I-1989, Malaise

trap (1 ♀, FSCA). Province unknown: Salto, I-10–1937, Dr. Reed, E. P. Reed collection (1 ♀, CAS); Salto, XI-1922, Dr. Reed (1 ♂, USNM).

Host.—Recorded as *Pristaulacus* sp.1 by Barriga (1990), who reared this species from *Hephaestion lariosi* (Bosq) (Cerambycidae). Adults have been collected from flowers of *Maytenus boaria* Molina (Celastraceae) (Elgueta and Lanfranco 1994).

Note.—The holotype of *N. braconiformis* is in The Natural History Museum, London, UK.

Aulacus krahmerti Elgueto and Lanfranco
(Figs. 8–14)

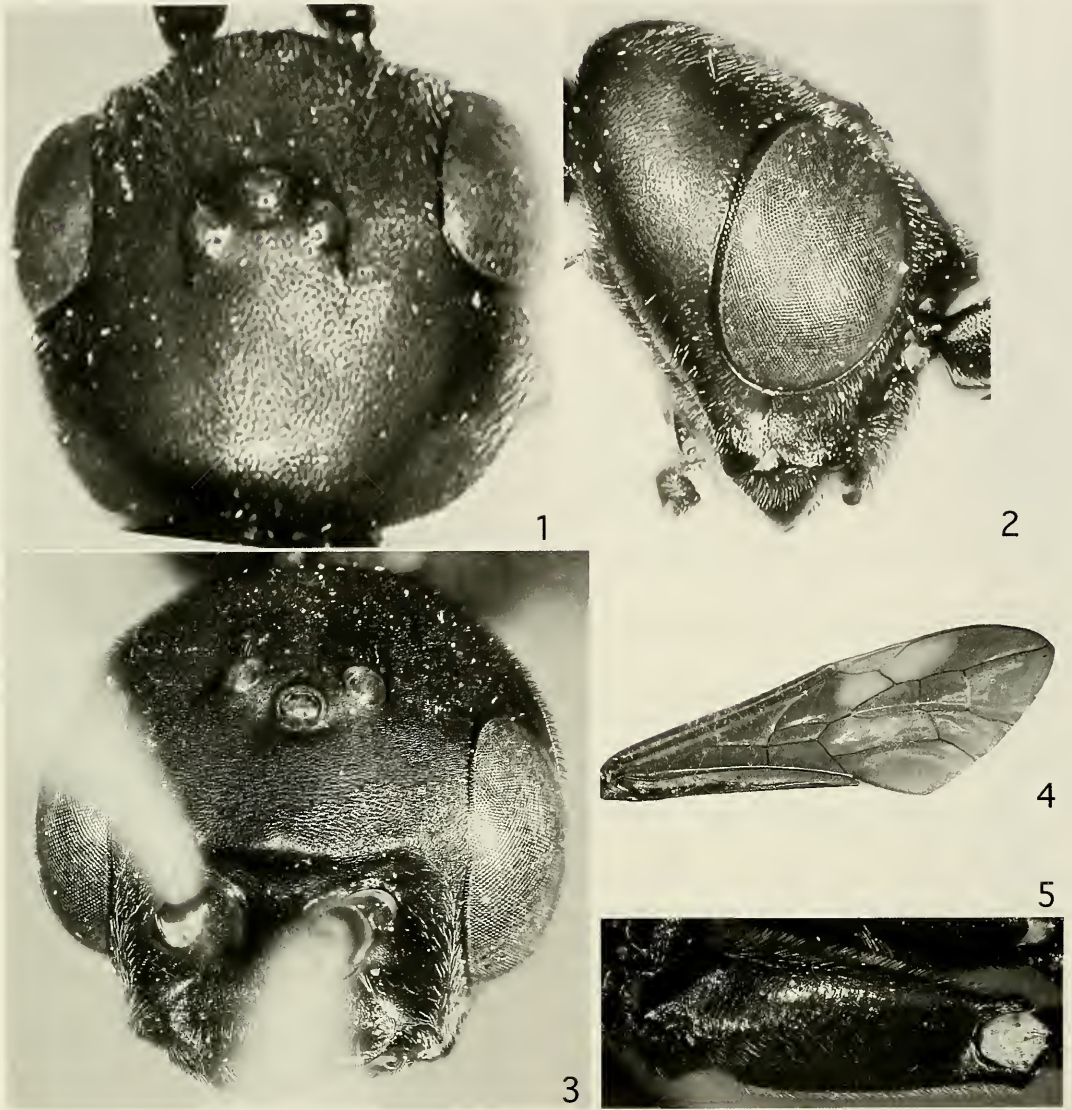
Aulacus krahmerti Elgueto and Lanfranco 1994: 90.—Smith 2001: 272.

Pristaulacus sp. 2: Barriga 1990: 58.

Diagnosis.—Length, about 13 mm. Antenna black with flagellomeres 5, 6, basal half of 7, and sometimes apical third of 4 white. Head black with reddish-brown marks on each side of vertex. Mesosoma and metasoma black. Legs black with hind tarsal segments 2 and 3 white and 4 brownish. Wings hyaline to evenly dusky, only costal cell of forewing black; stigma black (Fig. 11). Head evenly rounded in front, dull with fine microsculpture (Figs. 8–10). Mesonotum with transverse carinae. Notauli of mesoscutum not meeting behind, separately meeting transscutal articulation (Fig. 13). Upper surface of hind coxa with transverse carinae (Fig. 12); ovipositor guide at lower center on inner surface indicated by depression; hind prefemur distinct. Ovipositor length about 1.6× forewing length. Both sexes known.

Distribution.—Recorded from VII Region (Talca) to X Region (Valdivia) by Elgueta and Lanfranco (1994). Specimens I have seen fall within the known range and include western Argentina.

New records.—ARGENTINA: NEUQUÉN: Lago Nothoé, 30.I.949, Coll. F. Monros (1 ♀, AEL); S. Martin Andes, Pucara, Dec. ‘69, Schejovskor Coll. (2 ♀,



Figs. 1-5. *Aulacus braconiformis*. 1, Head, dorsal. 2, Head, lateral. 3, Head, front. 4, Forewing. 5, Dorsal surface of hind coxa.

FSCA). CHILE: CURICÓ: El Coigo, Cord. Curico, Oct./Nov. '59, L. Peña Guzman (1 ♀, AEI). LINARES: Romehual, Cord. Parral, 5/10-XI-60, Peña (2 ♀, CNC); Fundo Malcho, Cord. Parral, 11-20-XI-1964, L. E. Peña (5 ♀, CNC). MALLECO: Sierra de Nahuelbuta, W. of Angol, 1,200 m, I-3-51, leg Ross & Michelbacher (6 ♀, CAS); Cord. Lonquimay, I-5-1962, Luis Peña, La Fusta (1 ♀, AEI). ÑUBLE: Las Trancas, 1,600 m, XII.13.83, L. Peña (1 ♀, AEI).

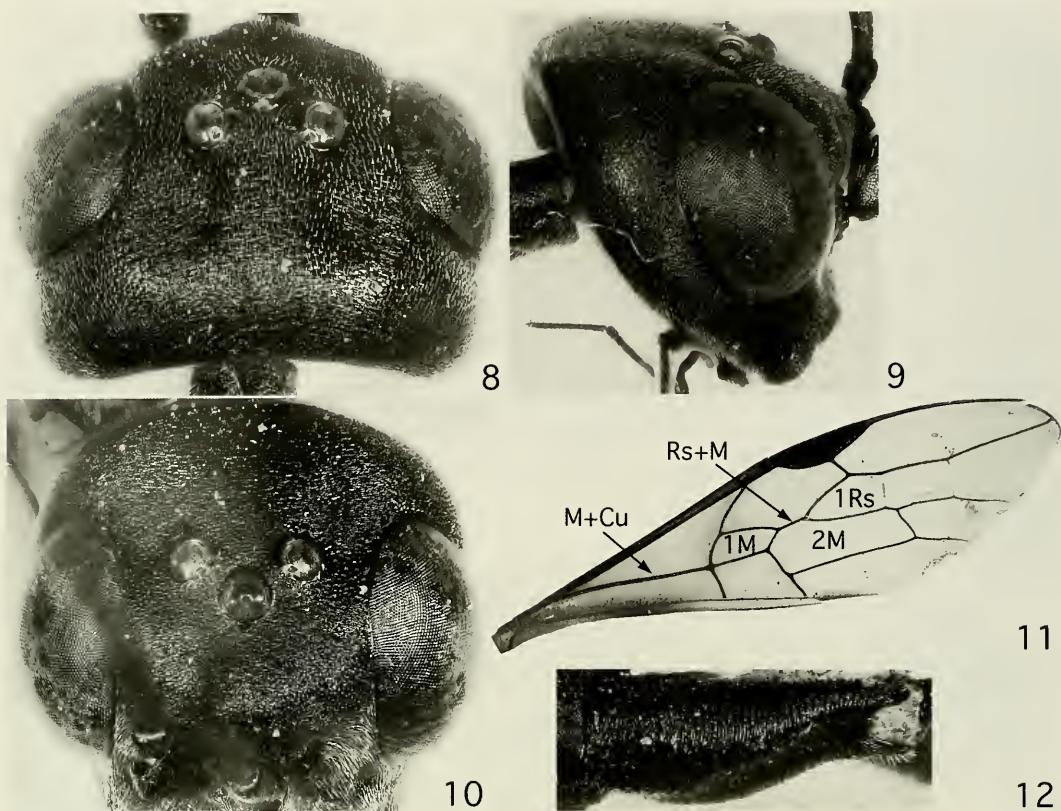
TALCA: Vilches, XI-1990, Pérez Arce (4 ♀, FSCA). Province unknown: Invernada, XII.70, Chillán, Luis Peña (1 ♀, AEI).

Hosts.—Recorded as *Pristaulacus* sp. 2 by Barriga (1990), who reared this species from wood from which *Callisphyris* spp., *Calydon submetallicus* (Blanchard), and *C. havrylenkoi* Bosq. (Cerambycidae) also emerged.

Note.—The holotype is in the Museo Nacional de Historia Natural, Santiago, Chile.



Figs. 6-7. *Aulacus braconiformis*. 6, Mesosoma, dorsal. 7, Mesosoma, lateral.



Figs. 8–12. *Aulacus krahneri*. 8, Head, dorsal. 9, Head, lateral. 10, Head, front. 11, Forewing. 12, Dorsal surface of hind coxa.

***Aulacus brevis* Smith, new species**
(Figs. 15–22)

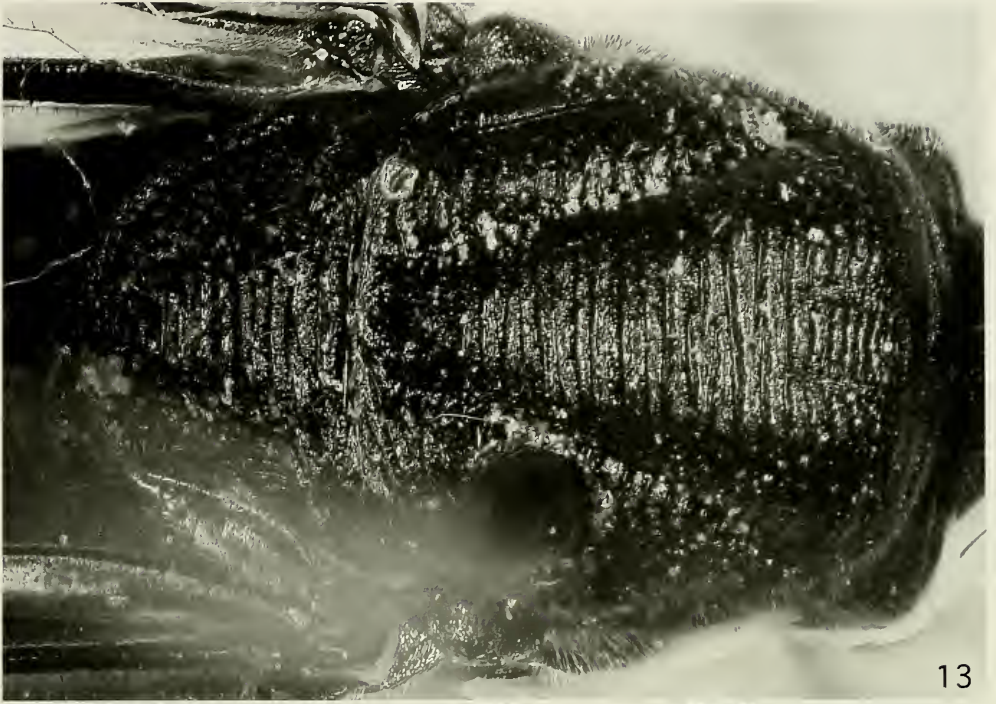
Diagnosis.—Length, 6 mm or less; black with legs yellow; malar space $0.3\times$ eye height; ovipositor length about half wing length; forewing cell 1M narrow, $3.5\times$ longer than broad and vein M-Cu atrophied basally.

Female.—Length, 5.0–6.0 mm; wing length, 4.0–5.0 mm; ovipositor length, 2.0–2.5 mm. **Color:** Antenna black with scape and pedicel reddish brown. Head black; mandible, except reddish apex, and mouthparts yellow. Mesosoma black. Legs yellow brown, with dark brown hind femur, hind tibia, and hind tarsus. Metasoma black with various amounts of yellowish toward and increasing in size to apex. Wings hyaline; stigma black; veins brown.

Head: Head from above narrowing be-

hind eyes (Fig. 16). Shiny, pubescent, and uniformly punctate with punctures separated by flat, shiny interspaces mostly greater than diameter of punctures (Figs. 16–18). In front view, eyes small and far apart, lower interocular distance about $1.2\times$ eye height. Malar space $0.3\times$ eye height (Fig. 18). Distance between lateral ocellus and eye subequal to distance between lateral ocelli. Distance between torulus and eye slightly longer than distance between toruli. Clypeus with small projecting tooth at center; about $3.0\times$ broader than long. Lengths of scape, pedicel, and first 3 flagellomeres as 1.0: 0.6:1.0:1.6:1.4.

Mesosoma: Notauli of mesoscutum not meeting behind, separately meeting transscutal articulation (Fig. 21). Mesoscutum and scutellum with transverse rugae (Fig. 21). Propleuron shining with scattered



Figs. 13–14. *Aulacus kraehneri*. 13, Mesosoma, dorsal. 14, Mesosoma, lateral.



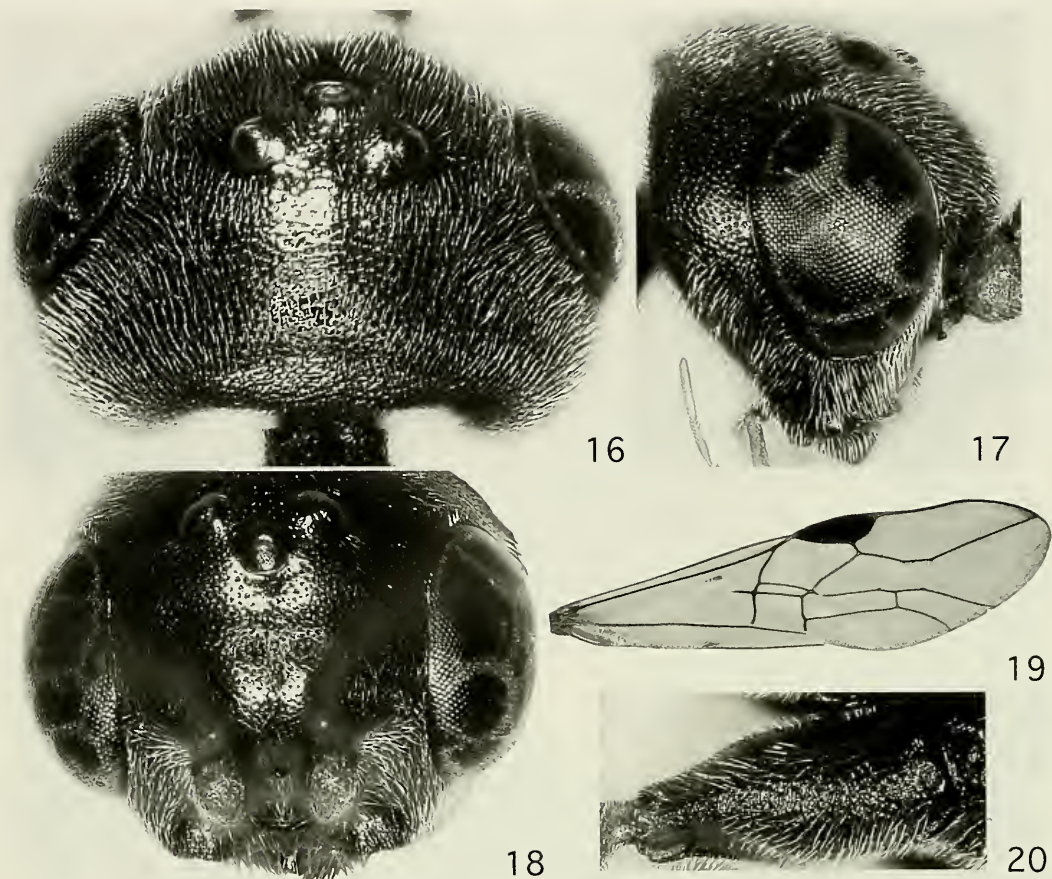
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Fig. 15. *Aulacus brevis*, lateral view. Length, excluding ovipositor, 6.0 mm.

punctures. Pleurae and propodeum mostly uniformly reticulate (Fig. 22) with unsculptured shining areas on upper and posterior pronotum and upper central area of mesopleuron; posterior margin of mesopleuron scrobiculate. Forewing (Fig. 19) with cell 1M small, narrow, $3.5\times$ longer than broad; cell 2M long, $4.0\times$ longer than broad; cell 1M touching cell 1Rs, not separated by part of vein Rs+M; vein M-cu partially atrophied toward Sc. Hind coxa dull, with

punctures and rugae on upper surface (Fig. 20); inner surface dull, with carinae, without ovipositor guide. Hind prefemur distinct. Hind tibia $1.2\times$ longer than hind femur; hind basitarsus $1.2\times$ longer than remaining tarsal segments combined; lengths of hind tarsal segments as $1.0:0.4:0.2:0.1:0.2$.

Metasoma: About $1.2\times$ longer than mesosoma. Ovipositor length $0.5\times$ wing length.

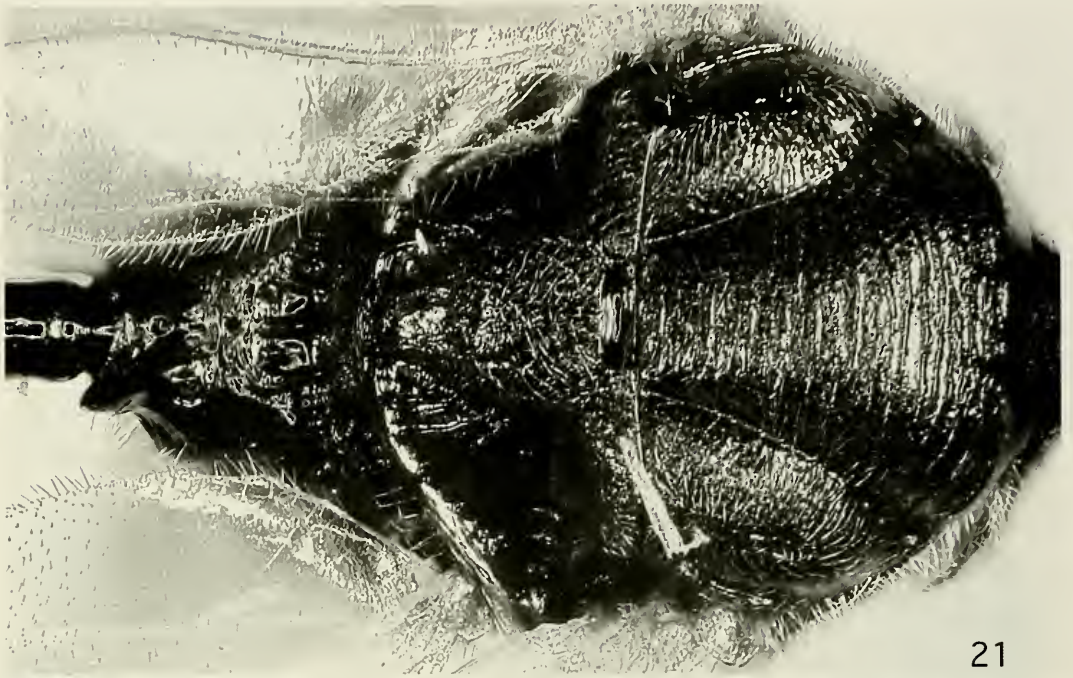


Figs. 16–20. *Aulacus brevis*. 16, Head, dorsal. 17, Head, lateral. 18, Head, front. 19, Forewing. 20, Dorsal surface of hind coxa.

Holotype.—Female, labeled “Pichina-huel, Cord. Nahuelbuta, Arauco, 1-X-1959, L Peña” (CNC).

Paratypes.—ARGENTINA: Neuquén, Pucana San Andes, XII-12-'68, Porter (1 ♀, FSCA). CHILE: Same data as for holotype except dates, 20-28-I-1959 (1 ♀, CNC), 1-10-I-1959 (1 ♀, CNC); Bío-Bío, El Abanice, XII-30-1950, leg Ross & Michelbacher (1 ♀, CAS); Acou. Zapallar, XII-15-1950, Ross & Michelbacher collectors (1 ♀, CAS); Cautín, Pucon (Península), 10-XI-9-XII-1989, C. Porter, Malaiste trap (1 ♀, FSCA); Puetrihue, Osorno, I-20-67, Lionel Stange (1 ♀, AEI); Malleco Prov., 4 km W Victoria, 300 m, 26-31-xii.76, S. Peck (1 ♀, AEI); Talca, Vilches, XII.'79, Luis Peña (1 ♀, AEI); Valdivia, 30-IX-1988, leg. Krah-

mer (6 ♀, PC); Chovellén, Maule, 5.XII.1953, L. E. Peña (1 ♀, CNC); El Coigo, C. Curico, I-1961, L. E. Peña (1 ♀, CNC); Fundo Malcho, Cord. Parral, XII-1957, L. E. Peña (2 ♀, CNC), same except I-1958 (1 ♀, CNC); Alto de Vilches, 70 km E Talca, 5.XII.84–20.II.85, S. & J. Peck (1 ♀, CNC); Curanipe, Maule, 4.XII.1953, L. E. Peña (1 ♀, CNC); Tregualemu, Maule—Ñuble, 7.XII.1953, L. Peña (1 ♀, CNC); Butomalal, Cord. Nahuelbuta, Arauco, 10-I-1959, 11–1,400 m, L. Peña (1 ♀, CNC); Icalma, 1,000 m, Cord. Lonquimay, 29-XII-58, L. E. Peña (1 ♀, CNC). J. Fernández Isl., Robinson Crusoe Is., Plazoleta—El Punque, 23-29-I-1992, S. A. Marshall (4 ♀, CNC), same except without “El Punque” and 24-29-I-1992 (3 ♀, CNC); J. Fernández

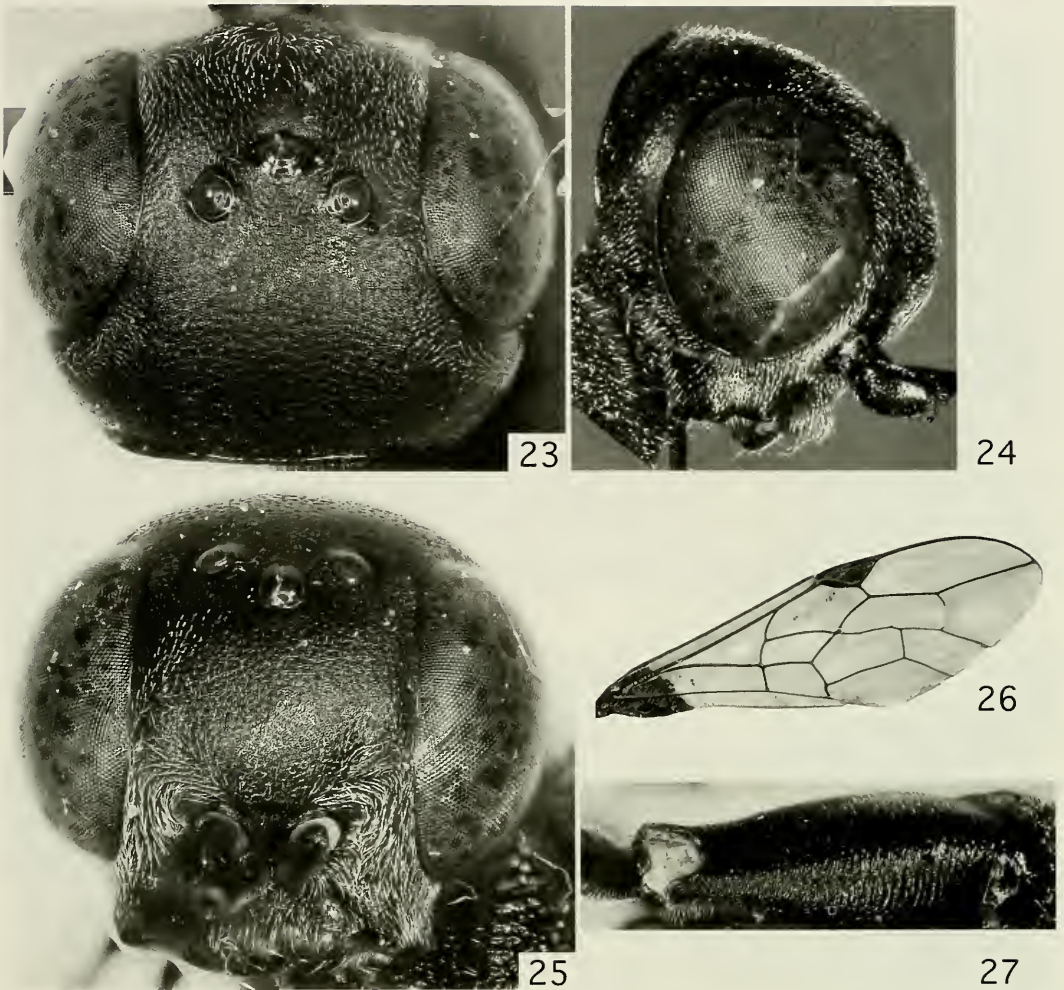


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Figs. 21–22. *Aulcus brevis*. 21, Mesosoma, dorsal. 22, Mesosoma, lateral.



Figs. 23–27. *Pristaulacus capitalis*. 23, Head, dorsal. 24, Head, lateral. 25, Head, front. 26, Forewing. 27, Dorsal surface of hind coxa.

Isl., Robinson Crusoe Is., Bahia Cumberland, 1-11-I-1993, S. A. Marshall, MT (5 ♀, CNC), same except 3.1.1993, Malaise over creek (1 ♀, CNC).

Distribution.—Argentina (Neuquén) and Chile from Aconcagua in the north, south to Osorno and the Juan Fernández Islands.

Etymology.—The species name reflects the small size, the smallest aulacid known from this region.

Discussion.—The similar color, size, general habitus, short ovipositor, and sculpturation place this species close to *A. brevicaudus* (Cushman) and *A. schiffi* Smith

from North America. In *A. brevicaudus* and *A. schiffi*, the malar space is long, half the length of the eye height; the lower interocular distance is $1.4\times$ the eye height; the toruli are closer together than the distance between the eye and the torulus; the head is less punctate; the legs are entirely reddish brown; coarse transverse carinae are present on the mesonotum; and cell 1M of the forewing is larger, only about two times longer than wide; and vein M-cu of the forewing is distinct.

No other Neotropical aulacid species is comparable. The small size, small forewing

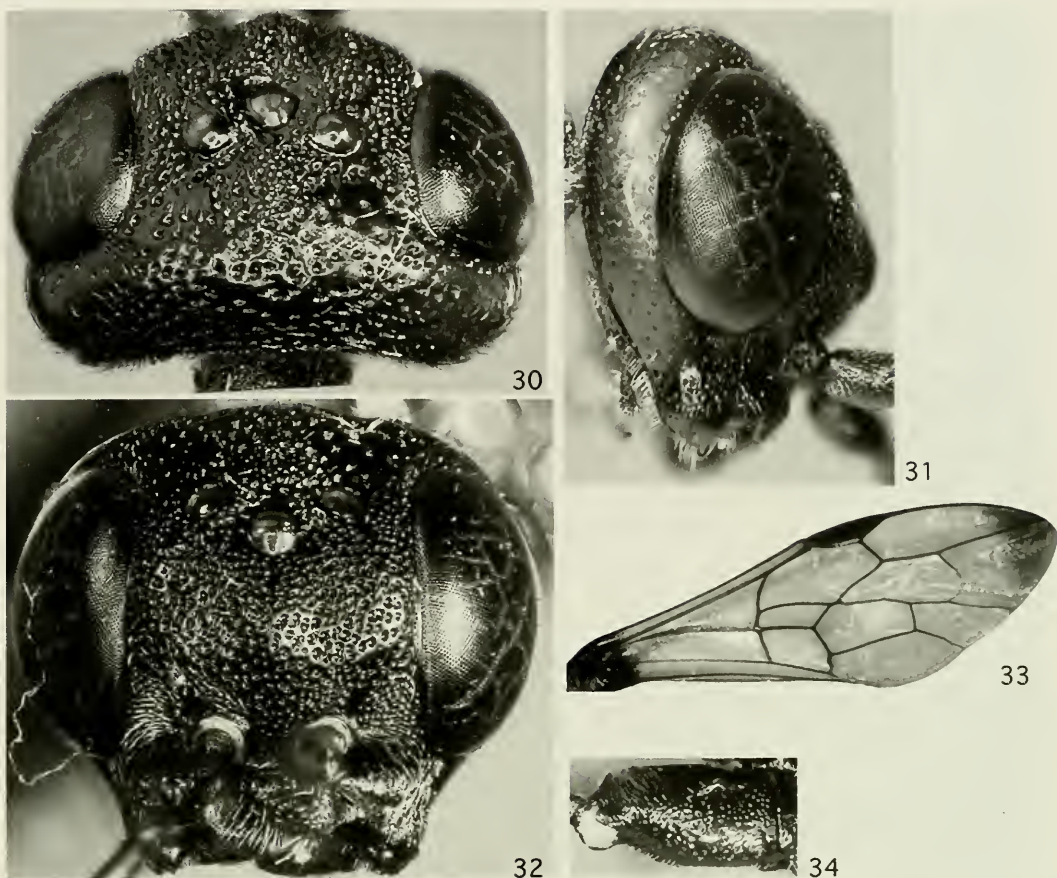


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Figs. 28–29. *Pristaulacus capitalis*. 28, Mesosoma, dorsal. 29, Mesosoma, lateral.



Figs. 30–34. *Pristaulacus rubriventer*. 30, Head, dorsal. 31, Head, lateral. 32, Head, front. 33, Forewing. 34, Dorsal surface of hind coxa.

cell 1M, atrophied vein M-cu, and short ovipositor are unique to *A. brevis*.

The biology and hosts are unknown.

Pristaulacus capitalis (Schletterer)
(Figs. 23–29)

Aulacus capitalis Schletterer 1889: 520, fig. 138.

Pristaulacus capitalis: Kieffer 1902: 12.—
Elgueta and Lanfranco 1994: 88.—Smith
2001: 280.

Diagnosis.—Length about 8–10 mm. Entirely black. Wings hyaline, without black spots (Fig. 26). Head dull and finely rugose, with fine microsculpture, rugae denser and more prominent on frons (Figs. 23–25).

Mesoscutum with notauli meeting at about transscutal articulation (Fig. 28). Upper surface of hind coxa with cross rugae (Fig. 27); with ovipositor guide distinct on inner surface near apex. Hind prefemur distinct. Tarsal claws with 3 teeth and small basal lobe. Ovipositor length slightly shorter than forewing length. Male unknown.

Distribution.—Recorded only from the Region Metropolitana de Santiago by Elgueta and Lanfranco (1994). The following records extend the distribution from Coquimbo in the north to Linares in the south.

New records.—CHILE: COLCHAGUA: 3 km N. Callejones. 1-22-1967. E. I. Schlinger (1 ♀; CAS). COQUIMBO: El



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Figs. 35–36. *Pristaulacus rubriventer*. 35, Mesosoma, dorsal. 36, Mesosoma, lateral.

Naranjo Tilama, Marzo 1968, Coll: J. Molina (1 ♀, AMNH). LINARES: Fundo Malcho, I-1957, L. E. Peña (1 ♀, CNC). MAULE: Forel Carrizahilo, 250 m, 30 Jan- 5 Feb. 1981, L. E. Peña (1 ♀, USNM). SANTIAGO: XII-21-47, L. Peña (1 ♀, AEI); Q. Sn. Ramón, I.10.75, Luis Peña (10 ♀, AEI); El Manzama, II-1983, 900-1,000 m, L. Peña (1 ♀, AEI); Rio Clarillo Nat. Pk., 23-I-23-II-1989, C. Porter & Ch. Gonzalez, Malaise trap (1 ♀, FSCA), same except 2-23-I-1989 (1 ♀, FSCA); Cordillera Reserve, Rio Clarillo, 23-I-23-II-1989 (2 ♀, FSCA). Province unknown: Baños de Cariguenes, 2-II-1890, P. Herbst, E.P. Reed Collection (1 ♀; CAS; 1 ♀ MCZ).

Notes.—The biology and hosts are unknown. The holotype is in the Museum für Naturkunde der Humboldt-Universität Berlin, Germany.

Pristaulacus rubriventer (Philippi)
(Figs. 30–36)

Aulacostethus rubriventer Philippi 1873: 202.

Aulacus rubriventer: Schletterer 1889: 423.

Pristaulacus rubriventer: Kieffer 1903: 455.—Elgueta and Lanfranco 1994: 87.—Smith 2001: 295.

Diagnosis.—Length, about 13 mm. Head and mesosoma black except antennal flagellum, gena, and spot at extreme bases of femora reddish brown; metasoma red with black spot at base. Forewing hyaline with black spot at apex (Fig. 33). Head shining, gena with few, widely separated punctures; vertex and frons more densely punctate with punctures closer together than interspaces (Figs. 30–32). Notauli meeting behind near transscutal articulation (Fig. 35). Mesoscutum and scutellum with coarse transverse carinae (Fig. 35). Hind coxa shining, punctate with faint carinae on apical half (Fig. 34); ovipositor guide on inner surface distinct, near apex of coxa. Hind prefemur distinct. Tarsal claws with 4 teeth and a very small basal

lobe. Ovipositor length subequal to or slightly longer than forewing length. Male unknown.

Distribution.—Elgueta and Lanfranco (1994) recorded this species from the Region Metropolitana de Santiago to VIII Region (Ñuble). I have seen four specimens from the Santiago area.

New records.—CHILE: SANTIAGO: Q. San Ramón, I-10-75, Luis Peña (2 ♀, AEI); Lo Cañas, I-1980, Luis Peña (1 ♀, AEI); Q. SN. Ramon, Dec. 1974 (1 ♀, CNC).

Notes.—Elgueta and Lanfranco (1994) stated that the tarsal claw has three teeth. The male, biology, and hosts are unknown. The neotype, designated by Elgueta and Lanfranco (1994), is in the Museo Nacional de Historia Natural, Santiago.

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